Early Journal Content on JSTOR, Free to Anyone in the World

This article is one of nearly 500,000 scholarly works digitized and made freely available to everyone in the world by JSTOR.

Known as the Early Journal Content, this set of works include research articles, news, letters, and other writings published in more than 200 of the oldest leading academic journals. The works date from the mid-seventeenth to the early twentieth centuries.

We encourage people to read and share the Early Journal Content openly and to tell others that this resource exists. People may post this content online or redistribute in any way for non-commercial purposes.

Read more about Early Journal Content at http://about.jstor.org/participate-jstor/individuals/early-journal-content.

JSTOR is a digital library of academic journals, books, and primary source objects. JSTOR helps people discover, use, and build upon a wide range of content through a powerful research and teaching platform, and preserves this content for future generations. JSTOR is part of ITHAKA, a not-for-profit organization that also includes Ithaka S+R and Portico. For more information about JSTOR, please contact support@jstor.org.

VOL. XIV. PART III.

JOURNAL

OF THE

INSTITUTE OF ACTUARIES

AND

ASSURANCE MAGAZINE.

NO. LXXI.

APRIL, 1868.

"I hold every man a debtor to his profession, from the which as men of course do seek to receive countenance and profit, so ought they of duty to endeavour themselves by way of amends to be a help and ornament thereunto."—BACON.

LONDON:

CHARLES AND EDWIN LAYTON, 150, FLEET STREET;

DEPOT FOR BOOKS ON ASSURANCE—LIFE, FIRE, & MARINE.

EDINBURGH: JOHN GRANT. NEW YORK: H. BAILLIÈRE, 290, BROADWAY.

PARIS: J. B. BAILLIÈRE, LIBRAIRE, RUE HAUTEFEUILLE.

HAMBURG: W. MAUKE SÖHNE.

PRINTED BY C. & E. LAYTON, 150, FLEET STREET,
TO WHOM ALL COMMUNICATIONS FOR THE EDITOR SHOULD BE SENT, POST PAID.

Price 2s.

INSTITUTE OF ACTUARIES.

President.

SAMUEL BROWN.

Vice-Presidents.

WILLIAM BARWICK HODGE.
THOMAS BOND SPRAGUE, M.A.
ROBERT TUCKER.
J. HILL WILLIAMS.

Fellows.

ARTHUR HUTCHESON BAILEY.
SAMUEL BROWN.
CHARLES JOHN BUNYON, M.A.
DAVID CHISHOLM.
GEORGE CUTCLIFFE.
ARCHIBALD DAY.
HENRY DEVEREUX DAVENPORT.
ALEXANDER GLEN FINLAISON.
ALEXANDER PEARSON FLETCHER.
EDWIN HENRY GALSWORTHY.
WILLIAM JOHN HANCOCK.
AUGUSTUS HENDRIKS.
WILLIAM BARWICK HODGE.
CHARLES JELLICOE.
JEREMIAH LODGE, B.A.
HENRY MARSHAL.
WILLIAM MATTHEW MAKEHAM.
FRANK M'GEDY.
JAMES MEIKLE.
JOHN MESSENT.
EDWARD A. NEWTON, M.A.
WILLIAM POLLARD PATTISON.
HENRY WILLIAM PORTER, B.A.
JOHN REDDISH.
HENRY AMBROSE SMITH.
WILLIAM SPENS.
THOMAS BOND SPRAGUE, M.A.
ROBERT TUCKER.
JOHN HILL WILLIAMS.
W. S. B. WOOLHOUSE, F.R.A.S.

The above constitute the Council for the current year.

MARCUS N. ADLER, M.A.
JOHN BULLER ALLAN.
ANDREW BADEN.
JOHN BARCLAY BANNERMAN.
GEORGE WILLIAM BERRIDGE.
EDWARD WILLIAM BRABROOK, F.S.A.
WILLIAM MEREDITH BROWNE.
DAVID BUMSTED.
ALEXANDER BURNETT.
EDWARD BUTLER.
THOMAS CARR.
WILLIAM PALIN CLIREHUGH.
JOHN COLES.
JOHN CRAIG.
PERCY MATTHEW DOVE.
JOSEPH STEVENS CUDLIP.
FRANK ALLAN CURTIS.
EDWARD CUTBUSH.
THOMAS GOLDIE DICKSON.
WILLIAM EMMENS.
JOHN HARRY EVENS.
ALEXANDER JOHN FINLAISON.
JOHN FRASER.
JAMES E. GALE.
WILLIAM SUTTON GOVER.
THOMAS HENRY GRIFFITH.
FREDERICK J. HALLOW.
HENRY HARBEN.
HENRY SPENDLOVE HAWKINS.
WILLIAM KING.
CLAUDE GEORGE LAING.
SAMUEL LINN LAUNDY.
JOHN LAURENCE.
CHARLES LUCIUS LAWSON.
EDWIN LENDON.
CHARLES TERRELL LEWIS.
JOHN ELPHICK LEYLAND.
WILLIAM THOMAS LINFORD.
ROBERT JOHN LODGE.
JOSIAH MARTIN.
DONALD MACGILLIVRAY.
THOMAS MILLER.
WILLIAM LEWIN NEWMAN.
WILLIAM NEWMARCH, F.R.S.
ARTHUR PEARSON.
GEORGE HENRY PINCKARD.
ALEXANDER GILLESPIE RAMSAY.
WILLIAM RATRAY.
EUGÈNE RÉBOUL.
WILLIAM BRIDGES ROW, B.A.
PHILIP SCOONES.
GEORGE SCOTT.
FREDERICK GARLE SMITH.
HENRY WILLIAM SMITH.
COLONEL JOHN THOMAS SMITH.
WILLIAM SMITH.
GEORGE STEWART.
JOHN STOTT.
JAMES TERRY.
JAMES MICHAEL TERRY.
ROBERT THOMSON.
JOSEPH TODHUNTER.
THOMAS WALKER, B.A.
JAMES M. WILSON
ROBERT WILSON.
SAMUEL YOUNGER.

Treasurer.

GEORGE CUTCLIFFE.

Honorary Secretaries.

ARTHUR H. BAILEY.
ARCHIBALD DAY.

Auditors.

GEORGE WILLIAM BERRIDGE.
RALPH PRICE HARDY.
BENJAMIN NEWBATT

Assistant Secretary.

FREDERICK GOVER.

[ENTERED AT STATIONERS' HALL.]

JOURNAL

OF THE

INSTITUTE OF ACTUARIES

AND

ASSURANCE MAGAZINE.

"I hold every man a debtor to his profession, from the which as men of course do seek to receive countenance and profit, so ought they of duty to endeavour themselves by way of amends to be a help and ornament thereunto."—BACON.

VOL. XIV.—PART III.

APRIL, 1868

LONDON:
CHARLES AND EDWIN LAYTON,
150, FLEET STREET.
EDINBURGH: JOHN GRANT. NEW YORK: H. BAILLIÈRE, 290, BROADWAY
PARIS: J. B. BAILLIÈRE, LIBRAIRE, RUE HAUTEFEUILLE.
HAMBURG: PERTHES, BESSER, & MAUKE.

[*The Council of the Institute of Actuaries of Great Britain and Ireland wish it to be understood, that while they consider it their duty to give, from time to time, publicity to certain of the papers presented to the Institute, they do not hold themselves responsible for the opinions put forward therein.*]

LONDON :
PRINTED BY CHARLES AND EDWIN LAYTON,
150, FLEET STREET; AND 12, GOUGH SQUARE

CONTENTS OF NO. LXXI.

PAGE

Report on the Sixth International Statistical Congress. By Samuel Brown, Esq., F.S.S., President of the Institute of Actuaries 165

On the final law of the sums of drawings. By A. De Morgan, Esq. 175

On the Rate of Interest in Loans repayable by Instalments. By Peter Gray, F.R.A.S., Honorary Member of the Institute of Actuaries (continued from p. 102) 182

On the Theory of Annuities Certain. By William Matthew Makeham, Fellow of the Institute of Actuaries 189

On the arrangement of Commutation, or D and N, Tables. By Mr. James Chisholm, of the North British and Mercantile Insurance Company, Edinburgh..... 200

Memoir on Instrument for furnishing the D numbers, to four figures each, in Two Joint Life Annuity Tables, on any basis. By Jardine Henry, Author of "The Government Annuity Tables," "The Government Life Annuity Commutation Tables," "The Hand Book for Life Assurers," &c. &c. 212

Eighth Annual Report of the Superintendent of the Insurance Department, State of New York 226

HOME AND FOREIGN INTELLIGENCE:—

Bonus Report of the Standard Life Assurance Company 235

„ „ Economic Life Assurance Society..... 237

„ „ Equity and Law Life Assurance Society..... 238

NOTES AND QUERIES:—

Solutions of the Second Year's Examination Questions 242

CORRESPONDENCE:—

Letter from Mr. W. M. Makeham on the Adjustment of Premiums for Life Assurance in reference to extra Risks 242

„ Mr. G. W. Berridge on the Demonstration of a Formula for Interpolation 244

„ Mr. Arthur H. Bailey on the Rate of Mortality at the period of early Manhood 247

„ Mr. Wilhelm Lazarus on the Establishment of a German Life Assurance Institute 248

NOTICE TO CORRESPONDENTS.

Communications for this *Journal* must be sent in at least one month prior to the day of publication, or their insertion will in all probability be deferred.